BURNS ENGINEERING

Application Note

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Temperature Plays Important Role in Beer Making

APPLICATION

The process of brewing beer involves many steps and temperature plays a critical role in determining the quality, flavor, and consistency of the outcome. No one knows this better than Jason Schoneman, Head Brewer and founder, of Steel Toe Brewing in St. Louis Park, Minnesota. Until connecting with Burns Engineering, Jason struggled with premature temperature sensor failures causing unnecessary downtime. As a craft brewer, beer taste and quality is critical; it's not just a matter of dollars and cents it's his reputation on the line.

300L (Shown with optional union connection)

Spring loaded, heavy duty RTD for use with thermowell

CHALLENGE

Jason's largest temperature challenges revolved around his mash tun temperature measurement. Mashing is where the beer brewing process begins. It is the process of combining a mix of grain (malt) and water and heating the mixture to allow the enzymes in the malt to break down the starch in the grain into sugars that can be fermented. The question is how much heat is needed to make this work. The temperature ranges between 143°F to 167°F depending upon the type of mashing process being used. Different temperatures and durations are used to activate different enzymes which impact the amount and types of sugars produced, which in turn, dictate flavor, body, alcohol content and caloric value. When the temperature is higher the yield is greater and the fermentability lower, and the opposite if the temperature is lower. Temperature control of ± 1°F is typically required to optimize the mashing process.

SOLUTION

We selected our Series 300L spring loaded sensor for use with a thermowell and a polypropylene connection head as the best combination of durability and accuracy for the mash tun process.

For more detail on the application, check out the full paper at:

http://www.burnsengineering.com/local/uploads/files/Steel_Toe_Brewing.pdf

Burns Engineering, Inc.
10201 Bren RD E
Minnetonka, MN 55343

Phone: 800-328-3871
Fax: 952-935-8782
E-mail: info@burnsengineering.com